LIST OF CONTENTS

VOLUME 48

NUMBER 1

Mini Review

D.B. Morton, P.J. Simpson 1 Cellular signaling in eclosion hormone action

S. Shiga, K. Yasuyama, N. Okamura, T. Yamaguchi 15 Neural- and endocrine control of flight muscle degeneration in the adult cricket, *Gryllus bimaculatus*

V. Sheeba, M.K. Chandrashekaran, A. Joshi, V.K. Sharma 25 Developmental plasticity of the locomotor activity rhythm of *Drosophila melanogaster*

S.J. Crafts-Brandner 33 Plant nitrogen status rapidly alters amino acid metabolism and excretion in *Bemisia tabaci*

C.J. Howarth, R.I. Prince, H. Dyker, P.M. Lösel, A. Seinsche, R.H. Osborne 43 Pharmacological characterisation of 5-hydroxytryptamine-induced contractile effects in the isolated gut of the lepidopteran caterpillar *Spodoptera frugiperda*

M.E. de Lima, M. Stankiewicz, A. Hamon, S.G. de Figueiredo, M.N. Cordeiro, C.R. Diniz, M.-F. Martin-Eauclaire, M. Pelhate 53 The toxin Tx4(6-1) from the spider *Phoneutria nigriventer* slows down Na^+ current inactivation in insect CNS via binding to receptor site 3

D.B. Gelman, M.B. Blackburn, J.S. Hu 63 Timing and ecdysteroid regulation of the molt in last instar greenhouse whiteflies *(Trialeurodes vaporariorum)*

C.J. Howarth, R.I. Prince, H. Dyker, P.M. Lösel, A. Seinsche, R.H. Osborne 75 Structure–activity relationship of contractile effects induced by helicokinins in the isolated gut of the lepidopteran caterpillar *Spodoptera frugiperda*

Y. Watari 83 Comparison of the circadian eclosion rhythm between non-diapause and diapause pupae in the onion fly, *Delia antiqua*

K.E. Personius, R.F. Chapman 91 Control of muscle degeneration following autotomy of a hindleg in the grasshopper, *Barytettix humphreysii*

J.G. Duman, A.S. Serianni 103 The role of endogenous antifreeze protein enhancers in the hemolymph thermal hysteresis activity of the beetle *Dendroides canadensis*

A.H.P. Ferreira, A.F. Ribeiro, W.R. Terra, C. Ferreira 113 Secretion of β-glycosidase by middle midgut cells and its recycling in the midgut of *Tenebrio molitor* larvae

R.K. Seth, D.K. Rao, S.E. Reynolds 119 Movement of spermatozoa in the reproductive tract of adult male *Spodoptera litura*: daily rhythm of sperm descent and the effect of light regime on male reproduction

G. Jayachandran, A.M. Fallon 133 Ultraviolet light sensitivity, unscheduled DNA synthesis and DNA repair in C7-10 *Aedes albopictus* mosquito cells

III Diary

NUMBER 2

G. Kölsch, K. Jakobi, G. Wegener, H.J. Braune 143 Energy metabolism and metabolic rate of the alder leaf beetle *Agelastica alni* (L.) (Coleoptera, Chrysomelidae) under aerobic and anaerobic conditions: a microcalorimetric study

F. Hayashi, Y. Kamimura 153 The potential for incorporation of male derived proteins into developing eggs in the leafhopper *Bothrogonia ferruginea*

N.P. Gudderra, D.E. Sonenshine, C.S. Apperson, R.M. Roe 161 Tissue distribution and characterization of predominant hemolymph carrier proteins from *Dermacentor variabilis* and *Ornithodoros parkeri*

J.L. Spencer, J.R. Miller 171 Lifetime ovipositional patterns of mated and virgin onion flies, *Delia antiqua* (Diptera: Anthomyiidae)

J. Delisle, J. Simard 181 Factors involved in the post-copulatory neural inhibition of pheromone production in *Choristoneura fumiferana* and *C. rosaceana* females

D. Robert, M.C. Göpfert	189	Acoustic sensitivity of fly antennae
G. Bernasconi, B. Hellriegel, A. Heyland, P.I. Ward	197	Sperm survival in the female reproductive tract in the fly *Scathophaga stercoraria* (L.)
F.G. Noriega, K.A. Edgar, R. Bechet, M.A. Wells	205	Midgut exopeptidase activities in *Aedes aegypti* are induced by blood feeding
N. Matushkina, S. Gorb	213	Stylus of the odonate endophytic ovipositor: a mechanosensory organ controlling egg positioning
A.G. Bertuso, S. Morooka, S. Tojo	221	Sensitive periods for wing development and precocious metamorphosis after precocene treatment of the brown planthopper, *Nilaparvata lugens*
R.B.R. Azevedo, V. French, L. Partridge	231	Temperature modulates epidermal cell size in *Drosophila melanogaster*
L. Auerswald, G. Gäde	239	Physiological and biochemical aspects of flight metabolism in cocoon-enclosed adults of the fruit beetle, *Pachnoda sinuata*
E.F.L.R.A. Patricio, L. Cruz-López, R. Maile, J. Tentschert, G.R. Jones, E.D. Morgan	249	The propolis of stingless bees: terpenes from the tibia of three *Frieseomelitta* species
J. Paul, W. Gronenberg	255	Motor control of the mandible closer muscle in ants
	III	Diary

NUMBER 3

Review

N.P. Gudderra, D.E. Sonenshine, C.S. Apperson, R.M. Roe	269	Hemolymph proteins in ticks
F. Xue, H.R. Spieth, L. Aiqing, H. Ai	279	The role of photoperiod and temperature in determination of summer and winter diapause in the cabbage beetle, *Colaphellus bowringi* (Coleoptera: Chrysomelidae)
J.V. Hernández, H. López, K. Jaffe	287	Nestmate recognition signals of the leaf-cutting ant *Atta laevigata*
S. Renault, A. Petit, F. Bénédet, S. Bigot, Y. Bigot	297	Effects of the *Diadromus pulchellus* ascovirus, DpAV-4, on the hemocytic encapsulation response and capsule melanization of the leek-moth pupa, *Acrolepiopsis assectella*
Y.-P. Li, M. Goto, L. Ding, H. Tsumuki	303	Diapause development and acclimation regulating enzymes associated with glycerol synthesis in the Shonai ecotype of the rice stem borer larva, *Chilo suppressalis* walker
H. Eichenseer, J.B. Murphy, G.W. Felton	311	Sequestration of host plant carotenoids in the larval tissues of *Helicoverpa zea*
M.K. Fischer, W. Völkl, R. Schopf, K.H. Hoffmann	319	Age-specific patterns in honeydew production and honeydew composition in the aphid *Metopeurum fuscoviride*: implications for ant-attendance
P.W. Sutherland, E.P.J. Burgess, B.A. Philip, M.T. McManus, L. Watson, J.T. Christeller	327	Ultrastructural changes to the midgut of the black field cricket (*Teleogryllus commodus*) following ingestion of potato protease inhibitor II
S.J.M. Moreau, A. Dingremont, G. Doury, P. Giordanengo	337	Effects of parasitism by *Asobara tabida* (Hymenoptera: Braconidae) on the development, survival and activity of *Drosophila melanogaster* larvae
P. Ventura Garcia, E. Wajnberg, J. Pizzol, M.L.M. Oliveira	349	Diapause in the egg parasitoid *Trichogramma cordubensis*: role of temperature
S.N. Burns, P.E.A. Teal, R.K. Vander Meer, J.L. Nation, J.T. Vogt	357	Identification and action of juvenile hormone III from sexually mature alate females of the red imported fire ant, *Solenopsis invicta*
A. Ahamed, S. Tsurumi, T. Amakawa	367	Triterpenoid saponins stimulate the sugar taste receptor cell through a G protein-mediated mechanism in the blowfly, *Phormia regina*
K.W. Beyenbach, R. Masia	375	Membrane conductances of principal cells in Malpighian tubules of *Aedes aegypti*
	III	Diary

NUMBER 4

Editorial Announcement	387	Journal of Insect Physiology 2001 REFEREES
Review		
A.G. Gibbs	391	Lipid melting and cuticular permeability: new insights into an old problem
H.L. Hoy, D.L. Dahlman	401	Extended in vitro culture of *Microplitis croceipes* teratocytes and secretion of TSP14 protein
A.I. Tawfik, Y. Tanaka, S. Tanaka	411	Possible involvement of ecdysteroids in photoperiodically induced suppresion of ovarian development in a Japanese strain of the migratory locust, *Locusta migratoria*
H. Le Corronc, P. Alix, B. Hue	419	Differential sensitivity of two insect GABA-gated chloride channels to dieldrin, fipronil and picrotoxinin
J. Bau, K.A. Justus, R.T. Cardé	433	Antennal resolution of pulsed pheromone plumes in three moth species
M.A. Carlsson, B.S. Hansson	443	Responses in highly selective sensory neurons to blends of pheromone components in the moth *Agrotis segetum*
L. Cruz López, E.F.L.R.A. Patricio, R. Maile, E.D. Morgan	453	Secretions of stingless bees: cephalic secretions of two Frieseomelitta species
H. Anbutsu, K. Togashi	459	Oviposition deterrence associated with larval frass of the Japanese pine sawyer, *Monochamus alternatus* (Coleoptera: Cerambycidae)
F. Marion-Poll, C. Descoins	467	Taste detection of phytoecdysteroids in larvae of *Bombyx mori, Spodoptera littoralis* and *Ostrinia nubilalis*
T.S. Adams, P.A. Filipi, S.-X. Yi	477	Effect of age, diet, diapause and juvenile hormone on oogenesis and the amount of vitellogenin and vitellin in the twospotted stink bug, *Perillus bioculatus* (Heteroptera: pentatomidae)
D.M. Donnell, M.S. Hunter	487	Developmental rates of two congeneric parasitoids, *Encarsia formosa* and *E. pergandiella* (Hymenoptera: Aphelinidae), utilizing different egg provisioning strategies
H. Shibao, M. Kutsukake, J.-M. Lee, T. Fukatsu	495	Maintenance of soldier-producing aphids on an artificial diet
	III	Diary

NUMBER 5

Y. Rahbé, M.C. Digilio, G. Febvay, J. Guillaud, P. Fanti, F. Pennacchio	507	Metabolic and symbiotic interactions in amino acid pools of the pea aphid, *Acyrthosiphon pisum*, parasitized by the braconid *Aphidius ervi*
N. Lovallo, B.A. McPheron, D.L. Cox-Foster	517	Effects of the polydnavirus of *Cotesia congregata* on the immune system and development of non-habitual hosts of the parasitoid
K.C. Park, J. Hardie	527	Functional specialisation and polyphenism in aphid olfactory sensilla
D. Sun, J.E. Steele	537	Regulation of phospholipase A_2 activity in cockroach (*Periplaneta americana*) fat body by hypertrehalosemic hormone: evidence for the participation of protein kinase C
H. Briegel, M. Hefti, E. DiMarco	547	Lipid metabolism during sequential gonotrophic cycles in large and small female *Aedes aegypti*
H.A. Woods, M.C. Perkins, J.J. Elser, J.F. Harrison	555	Absorption and storage of phosphorus by larval *Manduca sexta*
T. Sadakata, H. Hatano, T. Koseki, M. Koganezawa, I. Shimada	565	The effects of amiloride on the labellar taste receptor cells of the fleshfly *Boettcherisca peregrina*
S. Tanaka	571	Temperature acclimation in overwintering nymphs of a cockroach, *Periplaneta japonica*: walking on ice
B. Giordana, M. Forcella, M.G. Leonardi, M. Casartelli, L. Fiandra, G.M. Hanozet, P. Parenti	585	A novel regulatory mechanism for amino acid absorption in lepidopteran larval midgut

I Contents of *Insect Biochemistry and Molecular Biology*

III Diary

NUMBER 6

A.J. Hart, J.S. Bale, A.G. Tullett, M.R. Worland, K.F.A. Walters 593 Effects of temperature on the establishment potential of the predatory mite *Amblyseius californicus* McGregor (Acari: Phytoseiidae) in the UK

G. Goldsworthy, K. Opoku-Ware, L. Mullen 601 Adipokinetic hormone enhances laminarin and bacterial lipopolysaccharide-induced activation of the prophenoloxidase cascade in the African migratory locust, *Locusta migratoria*

Z.E. Jouni, H.K. Yun, M.A. Wells 609 Cholesterol efflux from larval *Manduca sexta* fat body in vitro: high-density lipophorin as the acceptor

C.R. Tosh, G. Powell, J. Hardie 619 Maternal reproductive decisions are independent of feeding in the black bean aphid, *Aphis fabae*

M. Yukizane, A. Kaneko, K. Tomioka 631 Electrophysiological and morphological characterization of the medulla bilateral neurons that connect bilateral optic lobes in the cricket, *Gryllus bimaculatus*

J. Blatt, F. Roces 643 The control of the proventriculus in the honeybee (*Apis mellifera carnica* L.) I. A dynamic process influenced by food quality and quantity?

K.P. Lee, S.T. Behmer, S.J. Simpson, D. Raubenheimer 655 A geometric analysis of nutrient regulation in the generalist caterpillar *Spodoptera littoralis* (Boisduval)

S.L. Waksmonski, R.I. Woodruff 667 For uptake of yolk precursors, epithelial cell-oocyte gap junctional communication is required by insects representing six different orders

I Contents of *Insect Biochemistry and Molecular Biology*

III Diary

NUMBER 7

R. Zapata, M.-D. Piulachs, X. Bellés 675 Ovarian 3-hydroxy-3-methylglutaryl-CoA reductase in *Blattella germanica* (L.): pattern of expression and critical role in embryogenesis

J. Blatt, F. Roces 683 The control of the proventriculus in the honeybee (*Apis mellifera carnica* L.) II. Feedback mechanisms

A. Liscia, R. Crnjar, C. Masala, G. Sollai, P. Solari 693 Sugar reception in the blowfly: a possible Ca^{++} involvement

S. Annadana, J. Peters, K. Gruden, A. Schipper, N.S. Outchkourov, M.J. Beekwilder, M. Udayakumar, M.A. Jongsma 701 Effects of cysteine protease inhibitors on oviposition rate of the western flower thrips, *Frankliniella occidentalis*

Y. Tanaka, Y.-J. Hua, L. Roller, S. Tanaka 707 Corazonin reduces the spinning rate in the silkworm, *Bombyx mori*

R.J. Zakarian, G.B. Dunphy, P.J. Albert, M.E. Rau 715 Apolipophorin-III affects the activity of the haemocytes of *Galleria mellonella* larvae

N.E. Beckage, R.C. Foreman, C.M. Palmatier, F.F. Tan 725 Inhibition of the larval ecdysis and emergence behavior of the parasitoid *Cotesia congregata* by methoprene

M.-P. Tu, R. Kou, G. O'Remus, C.-M. Yin, J.G. Stoffolano Jr. 733 Allatotropic activity in the brain of female *Phormia regina* (Diptera: Calliphoridae)

A.I. Tawfik, Y. Tanaka, S. Tanaka 743 Possible involvement of ecdysteroids in embryonic diapause of *Locusta migratoria*

I Contents of *Insect Biochemistry and Molecular Biology*

V Diary

NUMBER 8

Review

J.B. Nardi, R.I. Mackie, J.O. Dawson 751 Could microbial symbionts of arthropod guts contribute significantly to nitrogen fixation in terrestrial ecosystems?

M. Matsumoto, M. Takeda 765 Changes in brain monoamine contents in diapause pupae of *Antheraea pernyi* when activated under long-day and by chilling

K.J. Friesen, W.R. Kaufman 773 Quantification of vitellogenesis and its control by 20-hydroxyecdysone in the ixodid tick, *Amblyomma hebraeum*

L.Z. Pinto, K. Hartfelder, M.M.G. Bitondi, Z.L.P. Simões 783 Ecdysteroid titers in pupae of highly social bees relate to distinct modes of caste development

B. Hoste, S.J. Simpson, S. Tanaka, A. De Loof, M. Breuer 791 A comparison of phase-related shifts in behavior and morphometrics of an albino strain, deficient in [His^7]-corazonin, and a normally colored *Locusta migratoria* strain

S.G. Goto, D.L. Denlinger 803 Short-day and long-day expression patterns of genes involved in the flesh fly clock mechanism: *period, timeless, cycle* and *cryptochrome*

T. Singtripop, Y. Oda, S. Wanichacheewa, S. Sakurai 817 Sensitivities to juvenile hormone and ecdysteroid in the diapause larvae of *Omphisa fuscidentalis* based on the hemolymph trehalose dynamics index

R.B. Barrozo, K.-E. Kaissling 825 Repetitive stimulation of olfactory receptor cells in female silkmoths *Bombyx mori* L.

I Contents of *Insect Biochemistry and Molecular Biology*

IV Diary

NUMBER 9

L.L. Niu, A.M. Fallon 835 A ribosome-free extract from cultured cells improves recovery of polysomes from the mosquito fat body: analysis of vitellogenin and ribosomal protein rpL34 gene expression

E.H. Richards, J.P. Edwards 845 Larvae of the ectoparasitic wasp, *Eulophus pennicornis*, release factors which adversely affect haemocytes of their host, *Lacanobia oleracea*

S.G. Dedos, F. Szurdoki, A. Székács, A. Mizoguchi, H. Fugo 857 Induction of dauer pupae by fenoxycarb in the silkworm, *Bombyx mori*

M.G. Keeping 867 Reproductive and worker castes in the primitively eusocial wasp *Belonogaster petiolata* (DeGeer) (Hymenoptera: Vespidae): evidence for pre-imaginal differentiation

Y. Watari 881 Comparison of the circadian eclosion rhythm between non-diapause and diapause pupae in the onion fly, *Delia antiqua*: the effect of thermoperiod

D.K. Lewis, D. Spurgeon, T.W. Sappington, L.L. Keeley 887 A hexamerin protein, AgSP-1, is associated with diapause in the boll weevil

G.B. Dunphy, D.F. Niven, J.S. Chadwick 903 Iron contributes to the antibacterial functions of the haemolymph of Galleria mellonella

I Contents of *Insect Biochemistry and Molecular Biology*

IV Diary

NUMBER 10

Review

W.H. Telfer, R.I. Woodruff 915 Ion physiology of vitellogenic follicles

S.A. Pedersen, K.E. Zachariassen 925 Sodium regulation during dehydration of a herbivorous and a carnivorous beetle from African dry savannah

Y. Obara, M. Miyatani, Y. Ishiguro, K. Hirota, T. Koyama, S. Izumi, M. Iwami, S. Sakurai 933 Pupal commitment and its hormonal control in wing imaginal discs

Y. Jiang, C. Lei, C. Niu, Y. Fang, C. Xiao, Z. Zhang 945 Semiochemicals from ovaries of gravid females attract ovipositing female houseflies, *Musca domestica*

J. Žd'árek, P. Myška, R. Zemek, R.J. Nachman 951 Mode of action of an insect neuropeptide leucopyrokinin (LPK) on pupariation in fleshy (*Sarcophaga bullata*) larvae (Diptera: Sarcophagidae)

M. Holmstrup, K. Hedlund, H. Boriss 961 Drought acclimation and lipid composition in *Folsomia candida*: implications for cold shock, heat shock and acute desiccation stress

S. Li, P. Falabella, S. Giannantonio, P. Fanti, D. Battaglia, M.C. Digilio, W. Völkl, J.J. Sloggett, W. Weisser, F. Pennacchio 971 Pea aphid clonal resistance to the endophagous parasitoid *Aphidius ervi*

B. Hoste, S.J. Simpson, S. Tanaka, D.-H. Zhu, A. De Loof, M. Breuer 981 Effects of [His^7]-corazonin on the phase state of isolated-reared (solitarious) desert locusts, *Schistocerca gregaria*

I Contents of *Insect Biochemistry and Molecular Biology*

IV Diary

NUMBER 11

Review

K. Seidelmann, H.-J. Ferenz 991 Courtship inhibition pheromone in desert locusts, *Schistocerca gregaria*

F.J. Kelling, G. Biancaniello, C.J. den Otter 997 Electrophysiological characterization of olfactory cell types in the antennae and palps of the housefly

M. Hodkova, P. Berková, H. Zahradníčková 1009 Photoperiodic regulation of the phospholipid molecular species composition in thoracic muscles and fat body of *Pyrrhocoris apterus* (Heteroptera) via an endocrine gland, corpus allatum

A. Telang, N.A. Buck, D.E. Wheeler 1021 Response of storage protein levels to variation in dietary protein levels

M. Šlachta, J. Vambera, H. Zahradníčková, V. Košťál 1031 Entering diapause is a prerequisite for successful cold-acclimation in adult *Graphosoma lineatum* (Heteroptera: Pentatomidae)

Y. Nakamatsu, S. Fujii, T. Tanaka 1041 Larvae of an endoparasitoid, *Cotesia kariyai* (Hymenoptera: Braconidae), feed on the host fat body directly in the second stadium with the help of teratocytes

D.B. Rivers, L. Ruggiero, M. Hayes 1053 The ectoparasitic wasp *Nasonia vitripennis* (Walker) (Hymenoptera: Pteromalidae) differentially affects cells mediating the immune response of its flesh fly host, *Sarcophaga bullata* Parker (Diptera: Sarcophagidae)

S. Tanaka, D.-H. Zhu, B. Hoste, M. Breuer 1065 The dark-color inducing neuropeptide, [His^7]-corazonin, causes a shift in morphometic characteristics towards the gregarious phase in isolated-reared (solitarious) *Locusta migratoria*

I Contents of *Insect Biochemistry and Molecular Biology*

V Diary

NUMBER 12

K. Sasaki, T. Nagao 1075 Brain tyramine and reproductive states of workers in honeybees

M.G. Radtke, R.L. Rutowski 1087 Variation in the number of sperm transferred during mating among males of the Colorado potato beetle (Coleoptera: Chrysomelidae)

E.P.J. Burgess, G.L. Lövei, L.A. Malone, I.W. Nielsen, H.S. Gatehouse, J.T. Christeller 1093 Prey-mediated effects of the protease inhibitor aprotinin on the predatory carabid beetle *Nebria brevicollis*

G.J. Goldsworthy, D. Kodrík, R. Comley, M. Lightfoot 1103 A quantitative study of adipokinetic hormone of the firebug, *Pyrrhocoris apterus*

I. Masante-Roca, C. Gadenne, S. Anton 1111 Plant odour processing in the antennal lobe of male and female grapevine moths, *Lobesia botrana* (Lepidoptera: Tortricidae)

G. Bloch, J.P. Sullivan, G.E. Robinson 1123 Juvenile hormone and circadian locomotor activity in the honey bee *Apis mellifera*

J.R. Layne Jr., D.L. Blakeley 1133 Effect of freeze temperature on ice formation and long-term survival of the woolly bear caterpillar (*Pyrrharctia isabella*)

K.C. Park, T.C. Baker 1139 Improvement of signal-to-noise ratio in electroantennogram responses using multiple insect antennae

I Contents of *Insect Biochemistry and Molecular Biology*

V Diary

VII Volume contents and Author index, Volume 48